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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,897

02/26/2007

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54039-400200

6207

27717 7590 06/09/2009
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EXAMINER

SMITH, JENNIFER A

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

06/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,897	Applicant(s) GODFREY ET AL.	
	Examiner JENNIFER A. SMITH	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/26/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

Claims 1-36 are presented for examination.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 02/06/2007 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Claim Objections

Claim 1 is objected to because of the following informalities: The spelling of uranium metal in line 1 of claim 1 is incorrect.

Claim 15 is objected to because of the following informalities: It is believed that Applicant's mean 'Group 2 of the Periodic Table' not 'Group H'.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 19 recites the limitation "said at least one superplasticiser" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim. Claim 20 depends from the rejected claim 19 and further elaborates on the "superplasticiser".

Claims 21-35 recites the limitation "the container". There is insufficient antecedent basis for this limitation in the claim(s).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 18, 22-25, 28, 29, 31, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Roy et al. (US Patent No. 5,545,796).

In regard to claims 1 and 36, Roy et al. teach a method of containing a radioactive metal in a containment storage system. The radioactive metal includes uranium from a waste material [See Example 2, Column 17, line 2]. The radioactive waste is fixed in a matrix of a concrete binder [See Column 5, lines 26-30]. It is essential to thoroughly mix and disperse the contaminated material into its binder, so that the binder forms a matrix containing and firmly binding the discrete pieces or particles of contaminated material. In most cases where the binder is concrete, the

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cement used will be clean and non-contaminated so that good bonding is achieved [See Column 7, lines 61-66]. To minimize corrosion of the uranium metal, it is preferred to limit the amount of water used in the concrete mixture, supplementing the need for water for workability with plasticizer materials [See Column 14, lines 30-35].

In regard to claim 2, the radioactive metal includes uranium from a waste material [See Example 2, Column 17, line 2].

In regard to claims 3-8 additives such as air entrainer materials, cause microscopic air bubbles in the cured containment system. These air bubbles provide an insulative effect and increase freeze/thaw resistance to cracking [See Column 15, lines 26-31].

In regard to claim 18, Roy et al. teach adding a plasticizer to the cement mixture [See Figure 7].

In regard to claim 22, Roy et al. teach the use of Portland Cement in Column 14, lines 20 and 22.

In regard to claims 23 and 24, Roy et al. teach the addition of fillers such as ash or silica fume [See Figure 7, and Column 5, lines 63-65].

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In regard to claim 25, Roy et al. teach the binder material is a concrete mixture of cement and water [See Claim 11].

In regard to claim 28, the concrete is mixed, ensuring even distribution of the radioactive materials. The containers were cured for 2 days [See Column 18, lines 22-25].

In regard to claim 29, the container formed of concrete is capped with a lid (14) in Figure 4.

In regard to claim 31, it is essential to thoroughly mix and disperse the contaminated material into its binder, so that the binder forms a matrix containing and firmly binding the discrete pieces or particles of contaminated material. In most cases where the binder is concrete, the cement used will be clean and non-contaminated so that good bonding is achieved [See Column 7, lines 61-66]. To minimize corrosion of the uranium metal, it is preferred to limit the amount of water used in the concrete mixture, supplementing the need for water for workability with plasticizer materials [See Column 14, lines 30-35]. The plasticizer material is mixed with the cement mixture as shown in Figure 7 of the Roy reference.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4, 6, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (US Patent No. 5,545,796) as applied to claim 1 above, and further in view of Newton (US Patent No. 5,700,107).

In regard to claims 4, 6, and 13-16, the Roy reference does not teach the independent source of oxygen to be a peroxide.

Newton is drawn to a method of remediating contaminated soil by chelating the pollutants in a matrix comprising cement [See Abstract]. The matrix-generating agent may also include an oxidizing agent such as calcium peroxide or hydrogen peroxide in an amount from about 1 to about 3 percent oxidizing agent [See Column 4, lines 9-16].

One of ordinary skill in the art, at the time of Applicant's invention, would have been motivated to include a peroxide oxygen source as taught in the Netwon reference in the method of Roy et al. because they act as oxidizing agents to assist in oxidizing the pollutants [See Column 4, lines 9-16].

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (US Patent No. 5,545,796) as applied to claim 8 above, and further in view of Bustard et al. (US Patent No. 4,230,597).

In regard to claim 9, the Roy reference does not teach an anionic or non-ionic surfactant.

Bustard et al. is drawn to a way of converting radioactive waste into solid form [See Abstract]. A nonionic, cationic, or anion surfactant is provided as a defoaming material [See Column 3, lines 63-65]

One of skill in the art, at the time of Applicant's invention, would have been motivated to provide a surfactant like those taught in the Bustard reference as a defoaming agent in the radioactive metal encapsulation process. It has been found that many radioactive waste materials tend to foam upon addition of the acid-curing agent. The surfactant works as a defoaming agent which in a preferred embodiment comprises

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reducing the interfacial tension between the two liquids or between a liquid solid mixture.” [See Column 3, lines 56-68].

In regard to claim 10, the Bustard reference fails to teach the percentage of surfactant in the material.

One of ordinary skill in the art would be motivated to determine the optimal and workable ranges of the surfactant within the prior art conditions. Differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See MPEP 2144.05 IIA.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (US Patent No. 5,545,796) as applied to claim 8 above, and further in view of Datta et al. (US Patent Publication No. 2004/0079260).

In regard to claim 11, the Roy reference fails to teach cenospheres in the cementitious material.

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Datta et al. is drawn to the production of synthetic cenosphere-like microspheres. The synthetic microspheres are substantially chemically inert and thus a suitable replacement for natural cenospheres [See Abstract]. For these reasons, we can expect the microspheres and cenospheres to have similar characteristics and uses. The microspheres may be used as fillers in inorganic cementitious materials (including material comprising Portland cement, lime cement, alumina-based cements, plaster, phosphate-based cements, magnesia-based cements and other hydraulically settable binders) or concrete systems (including precise concrete structures, tilt up concrete panels, columns, suspended concrete structures etc.) [See Paragraph 0117].

One of ordinary skill in the art, at the time of Applicant's invention, would have been motivated to include cenospheres in the cement material of the Roy reference because filler materials are commonly used to impart properties of weight reduction, improved processing, performance enhancement, improved machinability and/or improved workability to the cement material [See Datta, Paragraph 0117].

In regard to claim 12, the Datta reference fails to teach the percentage of cenospheres added to the cementitious material.

One of ordinary skill in the art would be motivated to determine the optimal and workable ranges of the plasticizer within the prior art conditions. Differences in concentration will not support the patentability of subject matter encompassed by the

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prior art unless there is evidence indicating such concentration is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See MPEP 2144.05 IIA.

Claims 21, 30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (US Patent No. 5,545,796).

In regard to claim 21, the Roy reference fails to teach the percentage of plasticizer added to the cementitious material.

One of ordinary skill in the art would be motivated to determine the optimal and workable ranges of the plasticizer within the prior art conditions. Differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). See MPEP 2144.05 IIA.

In regard to claim 30, Roy et al. teach use of the articles as containers of every conceivable dimension, shape, weight, and capacity for processing temporarily or permanently holding, isolating, disposing, or preserving radioactive or hazardous materials, wastes, waste residues, spent materials, or by-products therefrom; which include radioactive waste or hazardous waste [See Column 3, lines 37-42].

One of ordinary skill in the art, at the time of Applicant's invention, would have been motivated to determine the optimal size of the container. Generally differences in size, proportion, and shape do not support the patentability of an article. See MPEP 2144.04 IV A and B.

In regard to claim 32-35, Roy et al. does not explicitly teach the sequence of the process steps.

In Example 2, the forms (containers) were then filled with a radioactive concrete mixture. After the concrete mixture is thoroughly mixed and at a consistency of about a 3 to 7 cm slump, the plasticizer and radioactive metal, are slowly added, preferably, over a 10 minute to 20 minute period, at a stir-mixing rate, preferably, of approximately 30 rpm to 50 rpm, for batches of 900 to 2,700 kg. Interpreting the steps sequence of steps in Figure 7 one of ordinary skill in the art would understand the cement and means for minimization of corrosion (plasticizer) are mixed into a composition prior to introduction into the form system (container).

Nonetheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to have practiced the method of Roy in any order of steps or combination thereof (i.e. mixing prior to introduction into the container, mixing after introduction, or mixing in a batch-wise or continuous, in-line manner) motivated by the

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fat that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results and the selection of any order of mixing ingredients is prima facie obvious. See MPEP 2144.04 IV-C.

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (US Patent No. 5,545,796) as applied to claim 25 above, and further in view of Mallek et al. (US Patent No. 4,652,404).

In regard to claims 26 and 27, the Roy reference fails to teach water content in the claimed ranges with regard to the cement composition.

Mallek et al. teaches a process for cementing waste materials. Radioactive wastes are mixed with aqueous cement in a ratio of 0.3:1, water: cement [See Column 3, lines 4-6].

One of ordinary skill in the art, at the time of Applicant's invention, would have been motivated to provide an aqueous cement mixture in the ratios taught in the Mallek reference for effecting the setting of the cement [See Column 3, lines 1-11].

Conclusion

Claims 1-36 are rejected.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. SMITH whose telephone number is

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(571)270-3599. The examiner can normally be reached on Monday - Friday, 9:30am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorgengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/

Supervisory Patent Examiner, Art Unit 1793

Jennifer A. Smith

May 26, 2009

Art Unit 1793

JS